In the Claims:

Please amend claim 6, 7, 9, 13, 21, 28 as follows. Pursuant to the Revised Format of Amendments, the status of all of the claims is given below.

Claims 1-5 (Cancelled)

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6. (Currently Amended) A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure ~~designated by~~ including the selected node and any child nodes of the selected node;

c) forming an equivalent table storing at least a portion of the items of data ~~corresponding to~~ included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure.

7. (Currently Amended) The method according to claim [[6]] 24, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

8. (Original) The method according to claim 7, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

9. (Currently Amended) An apparatus for constructing a data structure in which items of data are stored for search, comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure ~~designated by~~ including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data ~~corresponding to~~ included in the selected sub-tree structure in a table form, and determining the selected sub-tree structure when it satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure.

10. (Previously Presented) The apparatus according to claim 25, wherein

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the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

11. (Original) The apparatus according to claim 10, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

12. (Previously Presented) A search system comprising:

a) a memory storing a data structure in which items of data from an assumed tree structure that includes all of the items of data are stored for search, the data structure comprising:

(i) a tree structure in which the items of data are stored except for a portion of the items of data corresponding to a sub-tree of the assumed tree structure, which is a selected portion of the assumed tree structure; and

(ii) an equivalent table storing the selected portion of the items of data in table form; and

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b) a search section for searching the data structure for an item of data matching input search data.

13. (Currently Amended) A search system comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure ~~designated by~~ including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data ~~corresponding to~~ included in the selected sub-tree structure in a table form, and determining whether the selected sub-tree structure ~~when it~~ satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure that is stored in the memory.

14. (Previously Presented) The search system according to claim 26, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

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15. (Original) The search system according to claim 14, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

16. (Previously Presented) A storage medium for use in a search system in which items of data from an assumed tree structure that includes all of the items of data are stored for search as computer-readable items of data in a data structure, the storage medium storing the data structure, the data structure comprising:

a tree structure in which the items of data are stored except for a portion of the items of data corresponding to a sub-tree of the assumed tree structure, which is a selected portion of the assumed tree structure; and

an equivalent table storing the selected portion of the items of data in table form.

17. (Original) The storage medium according to claim 16, wherein

the tree structure includes a plurality of nodes, each of which is composed of a node information flag, a plurality of pointers each corresponding to predetermined branches, and related information, wherein each of the pointers indicates one of its child node, the equivalent table, and NULL, and

the equivalent table includes a plurality of entries, each of which is composed of a table node information flag, a tail entry flag, a data bit string, a search bit length, and related information.

18. (Original) The storage medium according to claim 17, wherein the data bit string is arranged so that a length of the data bit string is equal to that of search data, wherein the search bit length indicates a length of an original data bit string to match with the search data.

19. (Original) The storage medium according to claim 17, wherein the entries in the equivalent table are stored at consecutive locations in a memory.

20. (Previously Presented) The storage medium according to claim 16, wherein the sub-tree structure is selected so as to satisfy the following conditions a) and b):

a) an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure; and

b) search performance of the data structure is not lower than that of the assumed tree structure.

21. (Currently Amended) A storage medium storing a computer-readable program for constructing a data structure in which items of data are stored for search, the program comprising the steps of:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure ~~designated by~~ including the selected node and any child node of the selected node;

c) forming an equivalent table storing at least a portion of the items of data ~~corresponding to~~ included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure.

22. (Previously Presented) The storage medium according to claim 27, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

23. (Original) The storage medium according to claim 22, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$N_D \leq N_L \times K$, when $K = Te/Tn$,

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

24. (Previously Presented) The method according to claim 6, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

25. (Previously Presented) The apparatus according to claim 9, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

26. (Previously Presented) The search system according to claim 13, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

27. (Previously Presented) The storage medium according to claim 21, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller

than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

28. (Currently Amended) A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

forming an assumed tree structure in which all the items of data are stored;

sequentially selecting a node from the assumed tree structure to select a sub-tree structure ~~designated by~~ including the selected node and any child nodes of the selected node;

forming an equivalent table storing at least a portion of the items of data ~~corresponding to~~ included in the selected sub-tree structure in a table form; and

replacing the selected sub-tree structure with the equivalent table to construct the data structure.

29. (Previously Presented) A method according to claim 28, wherein the sub-tree structure is selected so as to satisfy the following conditions a) and b):

a) an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure; and

b) search performance of the data structure is not lower than that of the assumed tree structure.